

Borehole

**30-04-05**Log Event **A****Borehole Information**

Farm : <u>C</u>	Tank : <u>C-104</u>	Site Number : <u>299-E27-80</u>
N-Coord : <u>42,747</u>	W-Coord : <u>48,377</u>	TOC Elevation : <u>647.08</u>
Water Level, ft :	Date Drilled : <u>7/31/1974</u>	

**Casing Record**

Type : <u>Steel-welded</u>	Thickness, in. : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

**Borehole Notes:**

This borehole was drilled in July 1974 to a depth of 100 ft with 6-in. casing. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing. No information concerning grouting or perforations was available; therefore, it is assumed that the borehole was not grouted or perforated. The top of the casing, which is the zero reference for the SGLS, is even with the ground surface.

**Equipment Information**

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1996</u>	Calibration Reference : <u>GJO-HAN-13</u>	Logging Procedure : <u>P-GJPO-1783</u>

**Log Run Information**

Log Run Number : <u>1</u>	Log Run Date : <u>02/06/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>3.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>02/07/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>98.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>52.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>02/10/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>2.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>12.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

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Log Run Number :	<u>4</u>	Log Run Date :	<u>02/11/1997</u>	Logging Engineer:	<u>Bob Spatz</u>
Start Depth, ft.:	<u>53.0</u>	Counting Time, sec.:	<u>100</u>	L/R : <u>L</u>	Shield : <u>N</u>
Finish Depth, ft. :	<u>11.0</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

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### Analysis Information

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Analyst : D.L. ParkerData Processing Reference : P-GJPO-1787Analysis Date : 06/27/1997

#### Analysis Notes :

This borehole was logged by the SGLS in four log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy and peak-shape calibrations from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation. No fine gain adjustments were necessary during these log runs.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclide Cs-137 was detected in this borehole. The presence of Cs-137 was measured nearly continuously from the ground surface to a depth of 57.5 ft, intermittently from 69.5 to 91.5 ft, and continuously from 94.5 ft to the bottom of the logged interval.

The U-238 concentration data are absent between 11.5 and 14.5 ft and along numerous short intervals between the ground surface and 11 ft.

The K-40 concentrations increase to about 15 pCi/g from 38 to 45 ft. K-40 concentrations are slightly decreased and variable from 45.5 to about 58 ft, then increase gradually from 59 to 89 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Reports for tanks C-101 and C-104.

#### Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations. Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A plot of representative historical gross gamma-ray logs from 1975 to 1992 is included. An additional plot of



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historical gross gamma-ray logs is provided to show changes in activity recorded from January 1978 to March 1978. The headings of the plots identify the date on which the data in the plots were gathered.